

## **ABSTRACT**

Disclosed is a CMOS variable gain amplifier (VGA). The variable gain amplifier comprises a voltage-current converter for converting voltages of a wide input range into currents, a current shared circuit for receiving the currents from the voltage-current converter and controlling values of output currents depending on first and second control voltages, and a current-voltage converter for converting the output currents from the current shared circuit into differential voltages depending on a bias voltage in order to obtain a variable gain. The voltage amplifier having a variable gain is provided by controlling the value of the output current of the drain terminal against the gate voltage of the NMOS transistor constituting the current shared circuit. Therefore, an integrated circuit (IC) type variable gain amplifier operating a high speed at a low supply voltage can be obtained.